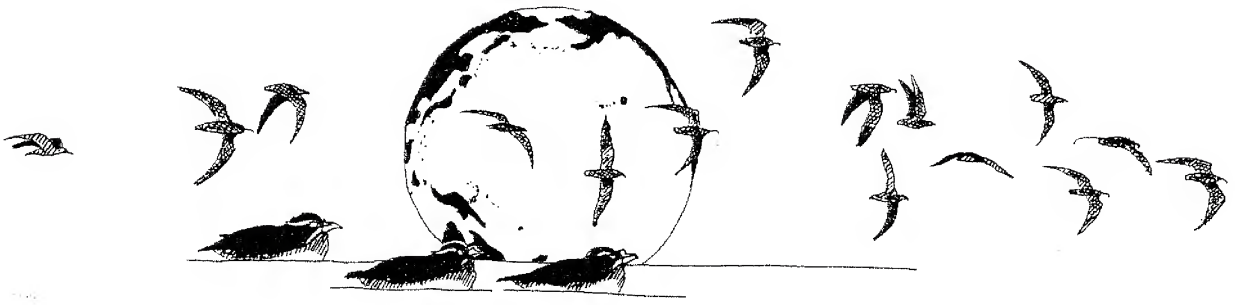
PACIFIC SEABIRD GROUP



BULLETIN

Vol. 1 September 1974 No. 2

PACIFIC SEABIRD GROUP
BULLETIN

Volume 1 | September 1974 | Number 2

Contents

* * *

All correspondence concerning the Bulletin should be sent to the Secretary.

THE CHAIRMAN'S PAGE

Since the publication of our first Bulletin less than one year ago the membership of the Pacific Seabird Group has almost doubled. We now number some 240 individuals. Interest in the group and its activities has come from a wide variety of groups and individuals such as the National Audubon Society, Australian Seabird Group, The Seabird Group, U.S. Fish and Wildlife Service, various state game commissions, etc. Contacts made through the group have resulted in several research projects and at least one article and symposium.

Despite our dramatic growth, however, there are still a number of individuals engaged in research with seabirds or interested in them as a unique resource, who are unaware of our activities or goals. If each member would make an effort to contact two or three of these people about PSG membership, we will get more complete coverage of activities relating to seabirds.

Plans for our first general membership meeting are well under way (see notice in this Bulletin). A very diversified and informative schedule of events has been planned and it is hoped that all members will be able to attend. While the paper sessions and alcid symposium will be the primary focus of the meeting, the facilities and schedules were chosen so as to provide maximum possibilities for the exchange of information and viewpoints among the membership. After all, that's what the PSG is all about!

The Pacific Seabird Group is just beginning to formalize its goals and objectives as well as its organizational format. In order that the end product might reflect the feelings of the membership, I invite your comments and suggestions as to questions which should be addressed, topics for future meetings, symposia, etc.

I am looking forward to seeing and talking with as many of you as possible at the meeting in Seattle. Aloha.

J. Michael Scott
P. O. Box 44
Hawaii Nat. Park, HI 96718

Executive Council Election Results

All seats on the executive council were up for election for 1975. In that year one-year terms will be served by representatives from British Columbia, Oregon, southern California and the two non-Pacific seats (U.S. and Canada); two-year terms will begin for Alaska, Washington, northern California, Mexico and Hawaii. Nominations and the opportunity for volunteers to step forward were open until 1 June 1974. Ballots were sent out by 15 June. The list of candidates with the winners underlined is given below:

Alaska - George J. Divoky, James C. Bartonek, J. Larry Haddock
British Columbia - Spencer G. Sealy, R. Wayne Campbell
Washington - David A. Manuwal
Oregon - J. Michael Scott
Northern California - David G. Ainley
Southern California - Daniel W. Anderson, R. Guy McCaskie
Mexico - Bernardo Villa-Ramirez
Hawaii - Robert J. Shallenberger, Palmer C. Sekora, John L. Sincock
Non-Pacific Canada - David N. Nettleship, M. Timothy Myres
Non-Pacific U. S. - C. Eugene Knoder, Gus Van Vliet

Participation in the election by PSG members was quite admirable with approximately sixty per cent of the ballots being returned. We thank the Point Reyes Bird Observatory for supplying postage for the ballots. Helen C. Strong helped to prepare, send and count the ballots. -David G. Ainley, Election Committee Chairman.

1974 Annual Meeting in Seattle in December

The first annual meeting of the PSG will be held from 6-8 December 1974 at the Providence Heights Education and Conference Center in Issaquah, Washington, east of Seattle. Papers on seabird biology and conservation will be presented and a symposium entitled "The Biology of the Alcidae" will be held. Movies on seabirds will be shown, PSG working committees will hold workshops and there will be discussions of PSG goals and activities. Since this is the PSG's first meeting it is hoped that as many members as possible will attend.

Individuals wishing to present papers or show films should contact Spencer G. Sealy, Dept. of Zoology, University of Manitoba, Winnipeg, R3T, 2N2. An abstract of 200 words or less should be submitted for all papers. Information on local accommodations can be obtained from David A. Manuwal, College of Forest Resources, University of Washington, Seattle, Washington 98195.

1975 Annual Meeting - Symposium Outline

A symposium outline for the 1975 annual meeting has been tentatively agreed upon by the Executive Council. The symposium committee is composed of Daniel W. Anderson, Chairman; J. Michael Scott, Cochairman; James C. Bartonek, George J. Divoky, David A. Manuwal and Ralph W. Schreiber. We hope to publish this symposium, providing adequate funds can be obtained. We thus request high-quality papers of either a specific nature or review articles. We are currently contacting authors and sponsors, but request also the comments and offers to give papers from our membership. Any persons wishing to present a paper relating to any of the topics below are asked to respond. Suggested changes and additions, offers to give papers, and any other comments may be mailed to D. W. Anderson, P. O. Box C, Davis, CA 95616 before 15 December 1974. The symposium outline is as follows:

Title: The Status and Conservation of Eastern Pacific Seabirds.

I. Population and Distributional Changes in Oceanic Avifauna as Related to Natural Phenomena.

1. Oceanographic changes in the Pacific and the distribution of pelagic fishes.
2. Seabird distribution and population change on the Pacific Coast as affected by oceanographic changes.
3. Meteorological factors in North Pacific seabird distribution.
4. Food resources as determinants of seabird populations.

II. Conservation Problems--Real and Potential.

1. Interactions with humans--direct and indirect.
   - A. The Pacific Coast, case histories of human exploitation.
   - B. The effects of human visits on breeding seabirds, intentional and unintentional.
   - C. Introduced animals, the effects on breeding seabirds.
   - D. Coastal development problems.
   - E. Fishery-seabird interactions, Peru--A case history.
   - F. An analysis of fishery-seabird interactions.
2. Oceanic Pollution.
   - A. Foreign chemicals in eastern Pacific ecosystems.
   - B. Oil spills and related problems on the Pacific Coast.

III. Specific Conservation Problems--Programs and Proposals.

1. Immediate concerns in seabird preservation--endangered species and threatened areas.

2. Baja California, Gulf of California action plan.
3. State/provincial and federal refuge and protection systems, status and needs.
   A. Legislation, treaties, and policy protecting seabirds and offshore islands.
      1. United States.
      2. Canada.
      3. Mexico.
   B. National Wildlife Refuge system for offshore islands.
   C. Canadian systems of seabird conservation.
   D. State/provincial conservation needs and protection systems for seabirds.
      1. California.
      2. Oregon--Washington.
      3. British Columbia.
      4. Alaska.

IV. General Discussions.

1. Proposed Action Plans and Priorities.
2. Resolutions and Recommendations.

Pacific Seabird Group Bulletin

Response to the first Bulletin has been gratifying. Many people have expressed surprise at the number of research projects being conducted and the quantity of people who have joined the Group. While the first two Bulletins have performed a very useful function by letting people know what is being done in seabird research and who is doing it, the future direction of the Bulletin is uncertain. Research on seabirds is not initiated often enough to warrant the issuing of two Bulletins a year if reporting research is to be the primary function of the Bulletin. Bulletin format may be expanded in the future to include more thorough reports on research, detailed articles on conservation issues, a larger literature review section and articles on field techniques. The frequency and content of the Bulletin will be discussed at the annual meeting in Seattle. Those people wishing to express their views but unable to attend the meeting are urged to write the Secretary.

Regardless of the future direction of the Bulletin a number of items are needed for the next issue. Members are asked to submit articles on conservation issues, either local or world-wide; reviews, summaries, and translations of foreign language seabird papers; and reports on the activities of groups involved in seabird research and conservation. Since many PSG members cannot attend the annual meeting, the Bulletin is the primary avenue by which the Group will achieve its goal of increasing the flow of information among seabird enthusiasts. This goal can only be reached if members voice

their opinions on Bulletin format and then use the Bulletin as a means of communicating with others interested in seabirds.

Colonial Nesting Waterbird Project

The National Audubon Society and the Cornell Laboratory of Ornithology are initiating a joint project on colonial nesting waterbirds. The first stage of the project will be to compile an inventory of breeding colonies with estimates or counts of the number of each species in the colony. The study will later be extended to provide calculations of breeding success in some colonies. The program will cover all of North America and Central America as far south as Panama. The data provided by such a survey will provide useful information on status and distribution, long term population trends, and the possible effects of environmental changes.

The goals of this project closely parallel the objectives of the PSG's Working Committee on Colony Censusing and ways in which the PSG can collaborate with the project are being investigated. Directing the project are Dr. Alexander Sprunt, Research Director of the National Audubon Society and Dr. David B. Peakall, Director of the North American Nest Record Program. Persons involved in censusing colonial nesting waterbirds are urged to contact Dr. Peakall at the Cornell Laboratory of Ornithology, 159 Sapsucker Rd., Ithaca, New York 14850.

REGIONAL REPORTS

The following reports contain a listing of current and recently completed research not included in the first number of the PSG Bulletin. Persons knowing of research projects or conservation issues that have not yet been included in the regional reports should contact the appropriate regional respresentative.

Alaska

Current Research

National Marine Fisheries Service (Marine Mammal Division, Naval Support Activity, Seattle, WA 98115)

1. Feeding interactions of northern fur seals and seabirds in the southeastern Bering Sea. 48 birds of 22 species were collected in 1974.
   Principal Investigators: Hiroshi Kajimura and Gerald A. Sanger.
2. Offshore food habits of seabirds in the central Aleutian Islands. Analysis of 77 stomach samples from seabirds collected by an experimental salmon gillnet study.
3. Ongoing analysis of pelagic seabird observations from 1967 to present, from a broad area of the North Pacific extending from California into the Gulf of Alaska and westward into the Aleutians and Bering Sea. Currently analyzing data for the Tufted Puffin. Principal Investigator for above two studies: Gerald A. Sanger.

U. S. Fish and Wildlife Service (Aleutian Islands National Wildlife Refuge, P. O. Box 5251, Adak, AK 98791).

Breeding biology of the Aleutian Canada Goose. The only remaining population breeding in the wild is being studied on Buldir Island. Birds raised in captivity are being released on Agattu Island in the hopes of establishing a breeding population.
Principal Investigator: G. Vernon Byrd.

U. S. Fish and Wildlife Service (Izembek National Wildlife Range, Pouch 2, Cold Bay, AK 99571)

1. The migration, mortality and reproductive success of the Black Brant.
   Principal Investigator: Robert D. Jones, Jr.

University of Lethbridge (Dept. of Colloquium Study, Lethbridge, Alberta TIK 3M4)

1. Research into the normal behavioral response of the Pacific Brant to its breeding habitat. Phase One: the nesting ecology of the Pacific Brant on the Yukon-Kuskokwim Delta, Alaska.

2. The interrelationship of Pacific Brant and the Black Turnstone on the Kashunuk River, Alaska.
Principal Investigators: John Eisenhauer and Jim Heather.

Regional representative for Alaska - George J. Divoky.

British Columbia

Current Research

No new research has been reported.

Personnel Changes

David Hatler has recently been hired as a wildlife biologist by the British Columbia Department of Recreation. He will cover north coastal British Columbia and the Queen Charlotte Islands. Although his plans are not yet finalized, seabird censuses and inventories may be part of his duties.

Regional representative for British Columbia - Spencer G. Sealy.

Washington

Current Research

There are no new studies since the first report in January, although Manuwal (U. Wash.) is organizing a beached bird survey that will cover selected localities in Puget Sound, the San Juan Islands, Strait of Juan de Fuca, Vancouver Island, and the Olympic coast.

Conservation Notes

Protection Island. The Nature Conservancy and the Washington State Game Department have entered into an agreement with the developer of Protection Island to purchase the last undeveloped portion of the island. This parcel of 47 1/2 acres includes the west side where the largest part of the Rhinoceros Auklet colony exists and a narrow sand spit important to harbor seals. The big question now is whether the property owners surrounding this parcel will be prohibited from having dogs and cats.

Personnel Changes

Rex VanWormer, refuge biologist for the Willapa Bay National Wildlife Refuge, and Washington Islands National Wildlife Refuge, has been transferred to the Bureau office in Boise, Idaho. It is unfortunate that Rex was transferred since he has taken an active interest and cooperated in seabird studies on the coast of Washington. His biologist

position at Willapa is being discontinued. All administrative and biological responsibility for seabird colonies in Washington now lies with Mr. Joseph Welch, Refuge Manager, Willapa Bay NWR. It is hoped that this is not a developing trend for the deemphasizing of biological research in the U. S. Fish and Wildlife Service; the refuge branch in particular.

Rex was the local contact in the event of a seabird disaster on the Olympic coast. Manuwal (206-543-2740) is now the local contact for that area.

Regional representative for Washington - David A. Manuwal.

Oregon

Current Research

No new research has been reported.

Personnel Changes

J. Michael Scott, formerly of Oregon State University, has accepted a position in Hawaii as a research biologist for the U. S. Fish and Wildlife Service. Mike was the local contact in the event of a seabird disaster on the Oregon coast and Wayne Hoffman (503-754-1128) will now assume those duties.

Regional representative for Oregon - J. Michael Scott.

Northern California

Current Research

California Department of Fish and Game (Marine Technical Information Center, 350 Golden Shore, Long Beach CA 90802)

Seabird observations in the California current. Seabird observations are made from research vessels and included in the annual data report "California Cooperative Oceanic Fisheries Investigations". Copies of the reports can be obtained from the Center's librarian.

Regional representatives for northern California - David G. Ainley and M. D. F. Udvardy.

Southern California

Current Research

University of California, Irvine (Dept. of Population and Environmental Biology, Irvine, CA 92664)

1. Colony size and distribution of cormorants in the Channel Islands.

2. Colony structure and anti-predatory behavior in Double-crested and Pelagic Cormorants on Mandarte So., British Columbia.
3. Significance of timing of breeding and nest-spacing in Glaucous-winged Gulls.
4. Activity patterns of Glaucous-winged Gull chicks in relation to feeding by parents: their potential significance in density-dependent mortality.
5. Food habits of Western Gulls on Santa Barbara Island.
6. Food habits of Glaucous-winged Gulls.
7. Food size selection by Black Oystercatchers.
8. The cause and significance of supernormal clutches in Western Gulls.
9. Colony structure and foraging strategies of two species of gulls in the Gulf of California.
10. Comparative study of taxonomic methodologies as applied to Pacific Coast gull populations.
Principal Investigator: George L. Hunt, Jr.

San Diego Natural History Museum (P. O. Box 1390, Balboa Park, San Diego, CA 92112)

1. Studies of human disturbance to nesting Brown Pelicans off the northwest coast of Baja California.
Principal Investigator: J. R. Jehl, Jr.

National Marine Fisheries Service (Southwest Fisheries Center, 8604 La Jolla Shores Drive, P. O. Box 271, La Jolla, CA 92037)

1. Pelagic seabird observations from cooperating tuna boats in relation to tuna-dolphin schools.
2. Pelagic seabird observations relating to albacore ecology in the northeast Pacific, coastal waters to 145°W.
Principal Investigators: William Perrin and R. Michael Laurs.

Conservation Notes

Offshore Oil Development. In the near future, there will be an almost certain increase in offshore oil development due to our national policy for increased independence in oil supply. Many natural areas and associated wildlife species off the West Coast are likely to soon be subject to potential disasters and decimations previously unexperienced. Basic information such as population sizes, natural rates of mortality, food habits, and other ecological data are not even available on many species off the West Coast, despite the fact that assessments of real or potential effects of offshore oil development will be needed in the near future. Thus it seems imperative that governmental agencies as well as educational institutions begin immediately diverse and basic studies of seabirds off the Pacific Coast, so that the definition of eventual problems encountered with offshore development will be more than speculative after-the-fact determinations.

New Coastal Wildlife Refuge. A new 800-acre National Wildlife Refuge has been recently established on the Seal Beach Naval Station on the southern California coast, the Fish and Wildlife Service recently announced. This refuge is but a small part of an even smaller remnant of natural California salt marsh and estuary area. Most of such areas are already gone and much more of the remaining habitat needs to be permanently preserved.

Regional representative for southern California - Daniel W. Anderson.

Mexico

Current Research

Departamento de la Fauna y Silvestre (Aquiles Serdan # 28-7-piso, Mexico 3, D. F., Mexico)

Life history studies of the Heermann's gull and Elegant Tern on Isla Raza, Gulf of California (not conducted in 1974 due to lack of funds).
Principal Contact: Sr. Mario Luis Cossio, Director General de la Fauna Silvestre.

Instituto Nacional de Pesca (Departamento de Recursos Pesqueros, Chiapas 121, Mexico 7, D. F., Mexico)

Oceanographic studies, fisheries statistics, and ecological studies relating to fisheries - many reports available in Spanish. Continuing research.
Principal Contact: Sr. Luis Kasuga Osaka, El Director General de I.N.P. Contact for reports: Instituto Nacional de Pesca, Biblioteca, Av. Cuauhtemoc 80, Mexico 7, D. F., Mexico.

Conservation Notes

Raza Island, Gulf of California. Prior to 1974, the Mexican government had stationed biologists on Isla Raza during the breeding season to conduct research on and to protect the Heermann's Gulls, Elegant Terns, and Royal Terns that nested there. Principal outside financial aid for this project was provided by the Arizona-Sonora Desert Museum. Isla Raza is presently the only seabird sanctuary in the Gulf of California. The island is well-known and attracts many tourists and tour groups; in addition, the island has historically been eyed upon (and "hit" when the opportunity arose) by egg-gatherers. Thus, continued protection has been necessary. In 1973, the breeding attempts on Raza all failed due to anomalous oceanographic conditions; but early in 1974 there were signs of improvement. Unfortunately, no wardens patrolled the island in 1974 and many visitors came up to watch and photograph nesting birds. 1974 was not an excellent productivity-year for Heermann's Gulls on Raza, but human disturbances

seemed to compound an already tenuous situation. For example, on an undisturbed island to the north, the percentage of young-of-the-year (percentage of total birds present in the colony) was 16 per cent. Undisturbed or lightly disturbed areas on Raza yielded about 12-15 per cent young, and areas of known heavy disturbance on Raza yielded less than 5 per cent young. It thus seems necessary that to maximize the protection of Raza Island, regular, yearly patrols are needed there.

Cooperation with Proper Authorities Regarding Research in Mexico. Besides the problems created by tourists and educational-scientific tour groups, much research in Mexico by well-meaning scientists is conducted without regard to the Mexican authorities, especially regarding the collecting of specimens. Most bird species are protected by international agreement under migratory bird conventions or recent legislation on endangered species. Proper courtesy by U. S. scientists will result in better international relations and less trouble for future researchers, despite the little amount of extra effort and "red-tape" required. Several points might be stressed:

1. cover all research projects with properly authorized collecting permits,
2. inform the Mexican authorities ahead of time (minimum of 4-6 months) to avoid last-minute delays, and,
3. send these authorities timely copies of reports and publications regarding research results.

The Departamento de la Fauna y Silvestre (address above) is the contact in Mexico for research coordination. These authorities are very much interested in cooperating in and encouraging research on seabirds (and other wildlife, for that matter). Unfortunately, the major deterrent to these authorities now in protecting non-game wildlife and conducting research is the lack of funds - the problem is acute. U. S. scientists and organizations can encourage financial aid to and participation by Mexican biologists on research projects. After all, many of the seabird conservation problems in the Gulf of California (for example) are related to problems created by Americans in Mexico - and thus our responsibility in part.

Temporary regional representative for Mexico - Daniel W. Anderson.

Hawaii

Current Research

U. S. Fish and Wildlife Service (337 Uluniu St., Kailua, HI 96734)

1. Status, abundance and distribution of the seabirds of the Hawaiian Islands National Wildlife Refuge. Continual

monitoring of populations in the leeward Hawaiian Islands.

2. Status, abundance and distribution of the seabirds of Johnston and Rose Atoll and Baker, Jarvis, and Howland Islands National Wildlife Refuges.
   Principal Investigator: Palmer C. Sekora

Conservation Notes

Refuge Regulations. The Hawaii State Division of Fish and Game is currently revising its regulations covering island refuges off Oahu to improve protective status and reduce damage by unauthorized visitors.

Temporary regional representatives for Hawaii - Palmer C. Sekora and Robert J. Shallenberger.

THE INTERNATIONAL BIRD RESCUE RESEARCH CENTER

by

David C. Smith, Director of Research, IBRRC, 2701 Eighth St. Berkeley, CA 94710

Our Center studies methods of rehabilitating seabirds, be they oiled, injured, orphaned, or ill. The rehabilitation of these birds is often more romantic than it is beneficial to seabird populations. There are, however, three major ways in which our work is of definite benefit.

First, and most important, is the research made possible by our holding seabirds in captivity. Gaviiformes and Podicipediformes (loons and grebes) are two groups that are rarely held in captivity, yet our Center usually has several representatives of these orders at any one time. We usually have alcids as well. Our ability to maintain these birds in good health improves continually. We share this practical expertise with researchers who wish to build their own facilities and we invite researchers to use our facilities for well-defined studies.

We band more loons and grebes than anyone else on this continent; freely admitting, however, that birds banded by us are less likely to behave as normally as birds captured expressly for the purpose of banding. Some obviously have thrived. For example, a Western Grebe was shot by a hunter approximately 600 miles from banding location two years after we cleaned oil from its plumage and released it.

Secondly, it is conceivable that the information and experience we are gaining with respect to physiology and husbandry of seabirds as well as to rehabilitation of oiled seabirds may, someday, be crucial in saving a significant portion of a seabird colony. Essentially all of the thousands of seabirds affected by the Torrey Canyon Spill died because of the lack of knowledge and experience available at the time. A very large portion of them were from a single colony. With the current state of the art, we can rehabilitate up to 60 per cent of alcids, 75 percent of grebes, and 90 percent of gulls caught in an oil spill. Unfortunately, our ability to rehabilitate loons and tube-nosed birds lags far behind.

Thirdly, we are responsible in a small way for increasing the public's awareness of seabirds. Many of our failures have gone to museum collections to be stuffed and mounted for display. Some of our crippled seabirds have been put on

display at zoos so that the public may see an indigenous species. Most zoos (with a few notable exceptions) concentrate on exotic species resulting in the public's total ignorance of the existence, and hence the need for protecting, local species of seabirds.

Our work is not as important as protecting seabird habitats and perhaps never will be. Yet we are helping to fill gaps in the knowledge of seabird biology, learning how to ameliorate damage to seabird populations caused by oil pollution, and helping to promote public awareness of seabirds. With the augmented informational exchange made possible by the formation of the Pacific Seabird Group, our progress and effectiveness can only be enhanced.

RECENT LITERATURE

MARINE BIRDS AND THE BIOLOGICAL STRUCTURE OF THE OCEAN. V. P. SHUNTOV. 1972. TINRO, Vladivostok, U.S.S.R. 376 pages, 73 figs., 37 tables. (In Russian)

The first issue of the PSG Bulletin contained translations of the chapter titles of this work. Recently various people have had parts of the book translated. The portions of the book that have been translated are listed below with the name of the person who initiated the translation given in parentheses.

Chapter I. Notes on the distribution of different species of marine birds.
- Section 1. North Pacific Albatrosses (M. T. Myres; C. Yeshner)
- Section 5. Slender-billed and Sooty Shearwaters (M. T. Myres)
- Section 6. Northern Fulmar (M. T. Myres)
- Section 7. Black-legged Kittiwake (M. T. Myres)
- Section 9. Tufted Puffin (G. A. Sanger)

Chapter II. Seasonal aspects of the ornithofauna in various areas of the Pacific and Indian Oceans.
- Section 1. Bering Sea (M. T. Myres)
- Section 4. North Pacific Ocean (north of 30°N) (M. T. Myres)

Chapter IV. Distribution of birds in relation to interspecific competition for food. (F. G. Cooch and K. Vermeer)

Chapter VI. Quantitative distribution of sea birds and the biological structure of the ocean. (F. G. Cooch and K. Vermeer)

Tables 1-37 and Figures 1-58 (M. T. Myres)

A copy of the translated introduction and table of contents are available from the Natl. Marine Fisheries Service by contacting Milton Rose, NOAA Translation Program, Office of Intl. Fisheries, NMFS, NOAA, U. S. Dept. of Commerce, Washington, D. C. 20235.

Further efforts to translate the book are being coordinated by Gerald A. Sanger, NMFS, Marine Mammal Division, NSA Bldg. 192, Seattle, WA 98115. People planning to initiate translations are urged to contact him so that no duplication of efforts occurs. Progress in translating the remaining portions of the book will be reported in future Bulletins.

PECULIARITIES OF BIOLOGICAL PRODUCTIVITY OF WATERS NEAR BIRD'S BAZAARS IN THE NORTH OF NOVAYA ZEMLYA. Academy of Sciences of the U.S.S.R., Soviet National Committee for International Biological Program. Order Lenin, S. M. Kirov Kola Branch, Murmansk Marine Biological Institute. 1972. Publishing House Nauka. Leningrad. 117 pages. (In Russian; English title and summaries)

The book contains the articles summarizing the material on hydrology, hydro-chemistry, phyto- and zooplankton and marine colonial birds collected by the Murmansk Marine Biological Institute expedition during August of 1967. The main purpose of these investigations is to give characteristics of the conditions that caused high biological production ensuring nourishment of numerous sea birds. Also analyzed is the inverse connection of birds with marine biocenosis - the influence of water fertilization by bird excrements upon water biological productivity. Data are given on the distribution of biogenic elements, phyto- and zooplankton in the region of Arkhangelsk Bay and Vilkitsky Gulf of Novaya Zemlya. Revision of the number of marine colonial birds is carried out in this region. Also given are the characteristics of the feeding connections of Little Auks (Plotus alle) with a pelagic association. The book contains original material characterizing a scarcely explored region and throwing light on some regularities of the circulation of organic matter in the sea. (Author's summary)

Chapter titles are:

Peculiarities of hydrological conditions near bird's bazaars in the north of Novaya Zemlya.
Alkality and alkaline coefficient of the coastal waters in the north of Novaya Zemlya.
Some data on carbon dioxide pressure in coastal waters of the north of Novaya Zemlya.
Peculiarities of biogenic element distribution near bird's bazaars in the north of Novaya Zemlya.
Phytoplankton in bird's bazaars of Novaya Zemlya.
Biology and the feeding connections of Little Auks (Plotus alle) with a pelagic association in the north of Novaya Zemlya.
The bird's bazaars in the north of Novaya Zemlya.
Peculiarities of zooplankton distribution and its productivity near bird's bazaars in the north of Novaya Zemlya.

BULLETIN BOARD

Request for Skeletons

The Australian Seabird Group is seeking seabird skeletal material to build up its reference collection for identification of beached birds and remains found in prehistoric deposits. Anyone interested in exchanging skeletal material with them should contact Jerry van Tets, CSIRO, P. O. Box 84, Lyneham, Canberra, A.C.T. 2602, Australia.

Movie for Sale

Ahuimanu Productions has recently completed a 25-minute, color, 16 mm, sound film entitled "Manana, Island of Birds". The film tells the story of an entire nesting season and covers the Sooty Tern, Noddy Tern and Wedge-tailed Shearwater in detail. Conservation issues of importance to the island are discussed. The film was produced by Walter Arnell and Robert Shallenberger. Parties wishing to purchase the film should contact Ahuimanu Productions, P. O. Box 116, Kailua, Hawaii 96734.

Request for Information - Removing Petroleum from Birds

Entech Environmental Consultants Ltd. intends to become involved in an oiled waterfowl and marine bird program on the west coast of British Columbia. They hope to develop an effective method of removing petroleum products from bird feathers. Information on the subject is currently being compiled and persons wishing to contribute should contact W. G. Biggs, Entech Environmental Consultants Ltd., Coal Harbor Wharf, North Ft. Cardero St., Vancouver 5, B.C.

Request for Information - Gull and Tern Colonies on Roofs

Gull and tern colonies situated on roofs have been reported from a number of localities in North America. This past spring a survey of Least Tern colonies on the Atlantic coast revealed several roof top colonies in southern Florida. An attempt is being made to determine how common such colonies are. Anyone knowing of a gull or tern colony located on a roof top is urged to contact Mrs. Bradley Fisk, 17101 S.W. 284 St., Homestead, FL 33030.

Request for Information - Sightings of Marked Brown Pelicans

From 1970 through 1974, other researchers and I have banded and color-marked juvenile Brown Pelicans. During that time 6400 birds have been tagged from Sinaloa to California. Each colony has a color-coded streamer (some worn out by now), and each year-class has a different type of marker placement. These birds could be seen anywhere on the Pacific Coast from Central America to British Columbia, and I ask for your reports. Each bird has at least a USFWS band, and usually

all or parts of a leg streamer. If one of these birds is seen, I wish the following information: 1) type and color of marker and which leg it is on, which leg(s) the band is on, band number if possible without injury or molestation of the bird, band and marker if the bird is dead; 2) date and location of the sighting; and 3) any other information you consider of importance. Photographs of marked birds would be highly useful; also photographs of loafing groups are much appreciated and helpful. If you find a dead, banded pelican save the carcass or at least the skull (we are seeking known-age specimens from natural mortalities). Under new laws it is illegal to possess whole specimens or parts of endangered species (the Brown Pelican is on the list), but the materials can be turned over or reported to a state or federal game warden with explicit instructions that I want them for official research. I would appreciate a phone call if a specimen is found (if necessary, call collect 916-756-1946 in Davis, CA). I also want fresh carcasses of pelicans found dead along the coast. These will need to be frozen, properly labelled and an appropriate warden plus myself notified. Streamer colors used which represent different pelican colonies are: white, light blue (lavender), orange, pink (probably all gone by now), light green, dark green, black, and dark blue. I will answer all responses, so please write or contact me. Daniel W. Anderson, U. S. Fish and Wildlife Service, Post Office Box C, Davis, CA 95616.

PACIFIC SEABIRD GROUP
MEMBERSHIP LIST

The following is a list of persons who have joined the PSG since the first PSG Bulletin was issued. The list includes the member's occupation and studies and/or interests relating to seabirds.

George Alderson
323 Maryland Ave. N.E.
Washington, DC 20002

Director of Federal Affairs, The Wilderness Society

Interests: Conservation of seabirds and their habitat. Consideration of wilderness designation for seabird nesting areas.

Robert Arbib
226 Guion Dr.
Mamaroneck, NY 10543

Editor, American Birds

Studies: Survival of certain alcids and other seabirds during glacial epochs.
Interests: Distribution, migration, populations and identification.

Range Bayer
Dept. of Zoology
Oregon State University
Corvallis, OR 97330

Graduate Student

Studies: Feeding ecology of estuarine Great Blue Herons.
Interests: Feeding ecology and behavior, especially with respect to seasonality.

John A. Bean
1105 Spear Ave.
Arcata, CA 95521

Student

Brian D. Bell
Wildlife Service
Dept. of Internal Affairs
Private Bag
Wellington
New Zealand

Senior Fauna Conservation Officer

Studies: Breeding distribution

James and Susan Bergens
242 Sierra Vista
Ridgecrest, CA 93555

Students

Alice B. Berkner
Intl. Bird Rescue Research Center
2701 8th St.
Berkeley, CA 94710

Executive Director, IBRRC

Interests: Ethology of alcids and grebes

Frances Berto
70 Crane Drive
San Anselmo, CA 94960

Student

Interests: Gulls and terns.

Stephen W. Bradley
Dept. of Zoology
University of Alberta

Student

Interests: Monitoring prey populations with respect to avian predators.

Kenneth T. Briggs
Dept. of Biology
University of California
Santa Cruz, CA 95064

Graduate Student

Studies: Breeding biology and nestling growth of gulls and shorebirds. Social dominance in wintering larids. Distribution, feeding ecology and population structure of marine species in central California.
Interests: Conservation of habitat and marginal populations.

Robert L. Brownell, Jr.
Div. of Mammals
Natl. Museum of National History
Smithsonian Institution
Washington, DC 20560

Zoologist

Studies: Research on trophic relationships within marine bird and mammal food webs.

Einar Brun
P. O. Box 66
N-9100 Kvaløysletta
Norway

Professor

Studies: Population dynamics of Sula bassana, Rissa tridactyla, Alca torda, Uria aalge, Uria lomvia and Fratercula arctica in Norway. Mercury and pesticides in seabird eggs. Seabirds in the Barents Sea. Food consumption of seabirds.
Interests: General breeding biology of north Atlantic seabirds.

Slader Buck
23155 Dolorosa
Woodland Hills, CA 91364

Student

Interests: Relationship of seabirds to estuary ecology.

Elizabeth F. Cary
Smith College
Northampton, MA 01060

Student

Studies: Homing experiments with Leach's Storm-petrel.
Interests: Population dynamics.

Roger B. Clapp
Bird and Mammal Laboratories
Natl. Museum of Natural History
Washington, DC 20560

Museum Specialist and Biologist

Studies: Distribution, abundance, dispersal and breeding regimes of central Pacific seabirds.

Mario Luis Cossio Departamento de la Fauna y Silvestre Aquiles Serdan #28 Mexico, D.F. Mexico	Wildlife Administrator Interests: The conservation of Mexican wildlife, including seabirds.
Malcom Clarke Coulter Point Reyes Bird Observatory P. O. Box 321 Bolinas, CA 94924	Graduate Student Studies: Gulls-clutch size, eggs, chick behavior, dispersal.
Ian McTaggart Cowan Dept. of Zoology University of British Columbia Vancouver, BC V6T 1R5	Professor Interests: Distribution and competition or resource use strategy. Ecology of the Alcidae.
David E. Crockett 21 McMillan Ave. Kamo, Northland New Zealand	Adviser on Science, Auckland Education Board Studies: Patrols to recover beached birds. Observations of birds at sea. Location of breeding colonies of rare seabirds. Interests: Tape recordings of calls and banding Procellariiformes.
Rolph Davis LGL Ltd., Environmental Research Associates Suite 414 44 Eglinton Ave. W. Toronto, Ontario M4R 1A1	Consulting Ecologist Studies: Distribution of seabirds in the arctic islands of Canada. Interests: All aspects of distribution, ecology and population dynamics.
Michael J. DeKeyrel 995 Isabella Ave. Monterey Park, CA 91754	Student Studies: Distribution and behavior. Interests: Conservation of seabird habitat.
William H. Drury 173 Water Row Sudbury, MA 01776	Research Biologist Studies: Breeding success, numbers and movements.
David C. Duffy Quincy House Harvard College Cambridge, MA 02138	Student Studies: Feeding biology of terns in Long Island Sound, New York in relation to food supply and pollutants. Interests: Seabirds as part of marine systems. Effects of predation and habitat disruption on colonial species.

David D. Dunatchik
P. O. Box 537
Makawao, HI 96768

Park Ranger - Haleakala Natl. Park

Studies: Assist with annual Dark-rumped Petrel burrow surveys in Haleakala Natl. Park.

John Eisenhauer
Colloquium Study
University of Lethbridge
Lethbridge, Alberta T1K 3M4

Graduate Student

Studies: Breeding ecology of the Pacific Brant in Alaska.
Interests: Avifauna of the North Pacific with particular interest in effects of oil and other development.

F. R. Fosberg
Smithsonian Institution
Washington, DC 20560

Botanist and Ecologist

Interests: Birds of coral atolls.

David A. Frazer
1356 S. Shelton
Seattle, WA 98108

Graduate Student

Studies: Population and behavior of the Tufted Puffin in Washington.
Interests: Population structure, reproductive cycles and behavior of alcids.

Robert Gill, Jr.
P. O. Box 368
Suisun, CA 94585

Wildlife Biologist

Studies: Bimonthly counts on Monterey Bay over fixed transects.
Interests: Seasonal distribution and abundance of California coastal pelagics.

Patrick J. Gould
NUS Corporation
1910 Cochran Rd.
Pittsburgh, PA 15220

Ornithologist

Studies: Seabirds of the tropical and subtropical Pacific Ocean.
Interests: Ecological and behavioral adaptations and interactions of birds over the open ocean.

Thomas C. Grubb, Jr.
Dept. of Zoology
Ohio State University
Columbus, OH 43210

Professor

Studies: Orientation and navigation of Leach's Storm-petrels. Olfaction in storm-petrels and shearwaters.
Interests: All aspects of behavioral ecology.

Sigurd Halvorsen N-4260 Torvastad Norway	Student Studies: Past work with Waved Albatross on Galapagos Islands and Laysan and Black-footed Albatross on Midway Islands. Interests: Albatrosses, larids and alcids.
Judith Latta Hand Biology Dept. University of California Los Angeles, CA 90024	Graduate Student Studies: Zooseimiotics, principally auditory communication in the Laridae.
Charles A. Harper Bechtel Corporation P. O. Box 3965 San Francisco, CA 94598	Environmental Consultant Studies: Breeding ecology of Western Gull.
Brian Harrington Manomet Bird Observatory P. O. Box 0 Manomet, MA 02345	Biologist Studies: Sooty Terns (central Pacific and Florida). Gulls off California. Shorebird ecology. Interests: Population regulation and breeding ecology.
Ken Harrington 1198 Oasis St. Arcata, CA 95221	Student Studies: Bird use of lagoons in Humboldt County, California Interests: Cormorant biology and distribution.
Minekiyo Hasegawa No. 205, 5-5-16 Inage Kaigan Chiba City Chiba Prefecture 281 Japan	Navigator for Fisheries Agency of Japanese Govt. Studies: Distribution of seabirds in relation to pelagic fish schools. Ecology and distribution of seabirds. Interests: Watching and photographing seabirds encountered during navigation in the high seas.
David F. Hatler British Columbia Fish and Wildlife Branch P. O. Box 158 Smithers, B. C. V0J 2N0	Wildlife Biologist Studies: Inventory studies, Pacific Island, B. C. Interests: Ecology and distribution requirements relative to potentially, disturbing land uses such as coastal logging.

Michael Holst
4970 Elmwood Dr.
San Jose, CA 95130

Graduate Student

Studies: Evaluating non-human vertebrate remains from a coastal and estuarian midden for a master's thesis.
Interests: Ecology and evolution of sea and shorebirds.

David W. Houseworth
U.S. Fish & Wildlife Service
P. O. Box 569
Ketchikan, AK 99901

Fishery Biologist

Studies: Coastal zone studies in southern southeast Alaska.
Interests: Effects of habitat change on bird use of estuaries, coves, bays, etc.

Joel D. Hubbard
120 S. 35th St.
Boulder, CO 80303

Graduate Student

Studies: Radar observations of Black Brant and Canada Geese at Izembek Natl. Wildlife Refuge, Alaska. Observations of Aleutian Terns on Umnak Island, Alaska.
Interests: Feeding ecology and bioenergetics. General biology of burrowing forms.

Carl L. Hubbs
Scripps Institution of Oceanography
La Jolla, CA

Professor

Studies: Collaborating with Joseph R. Jehl, Jr. of the San Diego Natural History Museum.
Interests: Distribution of seabirds and of landbirds wandering over the sea.

Philip S. Humphrey
Museum of Natural History
University of Kansas
Lawrence, KS 66045

Professor and Director of Museum of Natural History.

Studies: Formerly Principal Investigator of the Smithsonian Institution's Pacific Ocean Biological Survey Program.
Interests: Encouraging continued publication of the results of the Pacific Ocean Biological Survey Program.

Charles E. Huntington
Dept. of Biology
Bowdoin College
Brunswick, ME 04011

Professor and Director of Bowdoin Scientific Station, Kent Island

Studies: Population study of Leach's Storm-petrel.
Interests: Population dynamics and distribution.

Munechico Iwata 238 Hamanaka-cho Yoichi Hokkaido Japan	Biologist for Hokkaido Central Fisheries Experimental Station. Studies: Functions of seabirds in marine ecosystem, especially energy consumption by seabirds.
H. Lee Jones Dept. of Biology University of California Los Angeles, CA 90024	Graduate Student Studies: Land and seabird populations on California Channel Islands. Interests: Seabird distribution and abundance in California.
Robert D. Jones, Jr. Pouch 2 Cold Bay, AK 99571	Refuge Manager Studies: Black Brant population dynamics and migration.
Jon B. Jolly 5416 California Ave. S.W. Seattle, WA 98136	Ocean Instrumentation
Sigeyuki Kawashima V024-1, 3 Chome Nakaochiai Saijuku-ku Tokyo Japan	Student
Ronald W. Kay 1606 Gretel Lane Mountain View, CA 94040	Student Studies: Waterfowl and wetland habitat. Interests: Habitat preservation.
Ken Kennedy General Delivery Qualicum Beach, B.C. V0R 2T0	Resident Naturalist Studies: Survey work and banding.
Brina Kessel Box 80211 College, AK 99701	Professor and Curator of Bird and Mammal Collections. Interests: Biogeography, ecological and behavioral adaptations.
Eugene Kridler 835 Akuna St. Kailua, HI 96734	U.S. Fish & Wildlife Endangered Species Coordinator, Pacific Islands. Studies: From 1964 to 1973 served as manager of Hawaiian Islands Natl. Wildlife Refuge. Status, abundance, life histories, migration and banding. Interests: Same as above but now emphasis on endangered forms and seabirds of other areas of central and western Pacific.

G. Donald Kucera
7013 E. Kingston Dr.
Tuscon, AZ 85710

Physics Engineering

Studies: Distribution and life histories of seabirds in the Gulf of California with special interest in Isle San Jorge and Consag.

Robert I. Lanse
U.S. Fish & Wildlife Service
P. O. Box 569
Ketchikan, AK 99901

Fishery Biologist

Studies: Coastal zone studies in southern southeast Alaska.
Interests: Effects of habitat change on bird use of estuaries, coves, bays, etc.

R. Michael Laurs
Natl. Marine Fisheries Service
Southwest Fisheries Center
P. O. Box 271
La Jolla, CA 92037

Oceanographer

Studies: Seabird-oceanographic-environmental relationships in open ocean areas.
Interests: Fish-bird relationships.

Thomas R. Loughlin
Dept. of Biology
University of California
Los Angeles, CA 90024

Graduate Student

Interests: Migration and behavior of seabirds. Marine mammal distribution and ecology.

David Melville
Agriculture and Fisheries Dept.
Canton Rd. Government Offices
393 Canton Rd.
Kowloon
Hong Kong

Research Ecologist

Studies: Present research on bird strike hazard at airports. Past work in Britain included brief census of auks drowned in salmon nets and gull studies.

Jorge Enrique Mendoza
Apartado Postal 743
Hermosillo, Sonora
Mexico

Wildlife Biologist

Studies: Conservation and research activities on Gulf of California seabirds.

Eric L. Mills
Dept. of Oceanography
Dalhousie University
Halifax, Nova Scotia
Canada

Biological Oceanographer

Studies: At-sea distribution and feeding ecology.

Stan Moberly
P. O. Box 901
Ketchikan, AK 99901

Research Biologist

Studies: Herring research
Interest: Seabirds associated with Herring concentrations.

Keith A. Morehouse
Inst. of Arctic Biology
University of Alaska
Fairbanks, AK 99701

Graduate Student

Studies: Doctoral dissertation concerns the energetics and nutrition of Pacific Brant
Interests: Physiology and ecology.

Kazue Nakamura
5-60.
Minami-Naka Dori
Naka-ku
Yokohama
Japan

Curator of Ornithology

Studies: Distribution and migration of seabirds, particularly the genus Pterodroma in the western North Pacific. Tropical seabirds drifted by typhoons.
Interests: Evolution, breeding biology geological distribution and interspecific relations.

I. C. T. Nisbet
Massachusetts Audubon Society
Lincoln, MA 01773

Environmental Biologist

Studies: Currently working on Common, Arctic, Roseate and Least Terns in Massachusetts.
Interests: Breeding biology, feeding ecology, courtship and parental behavior, chemical pollution and effects of chemicals on eggshells and behavior.

David R. Nysewander
College of Forest Resources
University of Washington
Seattle, WA 98195

Graduate Student

Studies: Study on Destruction Island encompassing the Black Oystercatcher, rocky intertidal shorebirds and ducks (Harlequin).
Interests: Biology of Fork-tailed and Leach's Storm-petrel. Distribution and movements of all seabirds.

Harry M. Ohlendorf
U.S. Fish and Wildlife Service
Patuxent Wildlife Research Center
Laurel, MD 20810

Research Biologist

Studies: Evaluating the effects of environmental pollutants on seabirds, particularly in Alaska at this time.

Storrs L. Olson
Division of Birds
Natl. Museum of
Natural History
Smithsonian Institution
Washington, DC 20560

Zoologist

Studies: Systematic studies of several Tertiary seabird groups. Pleistocene changes in the seabirds of St. Helena.
Interests: Paleontology, evolution and zoogeography, particularly of Tertiary seabirds.

Elaine Payne
726 E. Laguna Ave.
Santa Maria, CA 93454

Student

Interests: Effects of pesticides on seabirds.

William F. Perrin
Natl. Marine Fisheries Service
Southwest Fisheries Center
8604 La Jolla Shore Dr.
La Jolla, CA 92037

Cetologist

Studies: Association of oceanic birds with multispecies aggregations of tuna and cetaceans in the eastern tropical Pacific.

Edward W. Pough
Dept. of Oceanography
University of Washington
Seattle, WA 98195

Chemical Oceanographer

Studies: Pelagic observations in the eastern tropical North Pacific.

C. John Ralph
Dept. of Biology
Dickinson, College
Carlisle, PA 17013

Professor

Studies: Breeding biology of Western Gulls and Cassin's Auklet.

Robin C. A. Rice
Dept. of Zoology
University of Texas
Austin, TX 78712

Graduate Student

Studies: Ecology, behavior, distribution and virus-vectoring capabilities of ticks infesting seabird colonies. Effects of tick feeding and tick-borne viruses on seabird mortality and morbidity.

Jon E. Rickert
122 N. Main St.
Elizabethtown, KY 42701

Attorney at Law

Interests: Distribution and habitat requirements.

Chandler S. Robbins
U.S. Fish and Wildlife Service
Migratory Bird and Habitat
Research Laboratory
Laurel, MD 20810

Wildlife Research Biologist

Studies: Distribution, migration and population dynamics of Laysan and Black-footed Albatrosses.
Interests: Monitoring of populations.

Peter Roberts
Fisheries Research Division
P. O. Box 19062
Wellington
New Zealand

Fisheries Biologist

Studies: Coordinating of New Zealand Ornithological Society Beach Patrol Scheme for the Wellington region. Distribution in relation to pelagic fish schools.
Interests: Zoogeography

William B. Robertson, Jr.
Everglades Natl. Park
Homestead, FL 33030

Zoologist

Studies: Population biology of oceanic terns and other tropical seabirds, particularly in the Atlantic Ocean.

Ronald A. Ryder
Dept. of Fishery and Wildlife Biology
Colorado State University
Fort Collins, CO 80521

Professor

Studies: Distribution, banding and movements.
Interests: Economics - consumptive uses vs. non-consumptive uses.

Lonnie Schultz
P. O. Box 78
Cutten, CA 95534

Student

Douglas Schamel
Dept. of Wildlife Management
University of Alaska
Fairbanks, AK 99701

Graduate Student

Studies: Breeding biology of the Pacific Eider.
Interests: Social systems and predator-prey interactions.

Joan Scott
U. S. Forest Service
P. O. Box 309
Petersburg, AK 99833

Wildlife Biologist

Robert J. Shallenberger
Ahuimanu Productions
P. O. Box 1166
Kailua, Oahu, HI 96734

Educational Filmaker - Biologist

Studies: Breeding behavior and olfactory homing in Procellariiformes, thermoregulation in terns and boobies and educational film-making of seabird colonies.
Interests: Conservation of Hawaiian seabird colonies and natural history education.

Dana Shuford 365 Valmore Ave. Ventura, CA 93003	Wildlife Biologist
David C. Smith Intl. Bird Rescue Research Ctr. 2701 8th St. Berkeley, CA 94710	Director of Research, IBRRC Studies: Oiled seabird rehabilitation. Environmental pollutants, physiology, diseases and pathology. Interests: Morphological and physiological adaptions.
Alexander Sprunt, IV Natl. Audubon Society 115 Indian Mound Trail Tavernier, FL 33070	Research Director Studies: Surveys of Mexican coasts. Interests: Population status.
Walter Stieglitz San Francisco Bay Natl. Wildlife Refuge Suite D 3849 Peralta Blvd. Fremont, CA 94536	Refuge Manager Studies: Studies are done under contract to Point Reyes Bird Observatory.
John O. Sullivan Dept. of Biology Southern Oregon College Ashland, OR 97520	Professor Interests: Ethology
Bob Swanson 4534-1/2 University Way N.E. Seattle, WA 98103	Student
Frank S. Todd 1720 South Shores Rd Mission Bay San Diego, CA 92109	Bird and Mammal Curator Interests: Conservation and research of marine birds and mammals.
John L. Trapp U.S. Fish and Wildlife Service P. O. Box 5251 Adak, AK 99695	Wildlife Biologist Studies: Breeding biology of the Red-faced Cormorant. Seasonal and annual changes in distribution of seabirds in the Aleutian Islands. Interests: Development of techniques for estimating population size.
John T. Vollertsen Apt. 1006-B 2200 Fuller Rd. Ann Arbor, MI 48105	Student Studies: Cladistic history of the alcids using a numerical approach.

Duff H. S. Wehle
Dept. of Biology
University of Alaska
Fairbanks, AK 99701

Graduate Student

Studies: Research assistant with Massachusetts Audubon Society Tern Project.
Interests: Breeding biology and behavior of larids and alcids.

Derek Winstanley
Environmental Systems Branch
Environment Canada
7th Floor Fontaine Bldg.
Ottawa, Ontario K1A 0H3

Climatologist

Interests: Migration and population dynamics.

Robert E. Woodley
1935 Hetrick Ave.
Richland, WA 99352

Physical Chemist

Interests: Spatial and temporal distribution of pelagic birds in the northeastern Pacific Ocean.

PACIFIC SEABIRD GROUP

DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

EXECUTIVE COUNCIL
1974